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SCHOOL-WIDE SCREENING OF STUDENT INVOLVEMENT IN RELATIONAL AGGRESSION

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Arts

in

The Department of Psychology

By
Emily F. Patty
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Abstract

The purpose of the current project is to develop a universal screening instrument to detect the presence of relational aggression within schools. This research is important because relational aggression is a covert behavior that teachers cannot readily observe, and in order to inform treatment and develop interventions, assessment has to be possible. A screener should be quick, easy to administer, and accurate at finding kids at-risk for engaging in relationally aggressive behaviors or being victimized by these behaviors. To ensure adequate sensitivity and specificity of the screening instrument, both logistic regression and t-ROC curve analysis were employed. Furthermore, the screeners developed were compared to established questionnaires of relational aggression developed for other research by Crick and her colleagues. The screeners compared well to the established anchor measures, and were statistically adequate. The peer nominated screener and the teacher report screener together best identified student involvement in relational aggression.

Key Words: Relational Aggression, Universal Screening

Review of the Literature

Universal Screening

Screening for academic and behavior problems is becoming more accepted and expected in educational settings as the “wait-to-fail” treatment model becomes outdated. The “wait-to-fail” model has been used in both general education and special education historically. In this model, a student must be actively so far behind his peers that failing in a subject is the only option to be eligible to receive services. Alternatively, with the response to intervention model, students can go through several tiers of intervention, beginning with universal screening and treatment. Universal screening assessments are intended to be given to an entire school or classroom to identify students who are at-risk for or are currently experiencing problems that can lead to negative outcomes. Identified students will be given more intense interventions to reduce or prevent academic or behavioral problems. This means that students can be at-risk for failure in a subject, but not so far behind that remediation is impossible, to be noticed and given services. At this point, screening is considered an essential step in prevention and intervention for students (Glover & Albers, 2007; Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007).

Screening for emotional and behavioral problems in schools is in its infancy. Teachers sometimes see behavior problems as lying outside of their realm of responsibility. However, students spend much of their young lives with teachers, making competency to handle emotional and behavioral problems an essential part of a teacher’s repertoire. Furthermore, in the No Child Left Behind Act, special mention was made to the importance of early identification of academic and behavioral problems. In other words, by law, schools must attempt to find and help students who may suffer negative outcomes later in life due to current behavioral problems (Severson et al., 2007).

Screeners that are correctly matched to the variable or outcome of interest are necessary for many kinds of problems encountered on a day to day basis. The main purpose of a screener is to identify

situations or behaviors that are not readily visible. For example, when a person gets a routine mammogram or colonoscopy, it is to find out what could be wrong, because cancers that are found through these procedures are not visible to the naked eye, and the effects are certainly not felt immediately. In school settings, screeners minimize the time a child is performing maladaptively. When a child is having a hard time understanding subtraction with regrouping, a teacher might not notice until that student starts to fail, but a short screening tool could catch this problem early. If a child is gossiping about other children or finding ways to socially isolate another child, a teacher will have a very hard time detecting that problem. This last situation, an example of relational (social, indirect) aggression, is the focus of the current research.

Relational aggression, social aggression, and indirect aggression have been studied for a number of years. These terms are not equivalent, but are related and all refer to a form of aggression involving the manipulation of relationships in the place of causing physical harm to isolate or hurt other people (Björkqvist, 2001; Card, Stucky, Sawalani, & Little 2008; Xie, Cairns, & Cairns, 2005). Relational aggression has been well defined, and the next step for evidence-based practice would be to develop screening procedures that will lead to intervention for these various forms of bullying. The focus of the current research is to develop a universal screening tool for schools to identify victims and perpetrators of relational aggression.

Relational Aggression

Relational aggression is any behavior that causes harm to others through damage to relationships or social status. This can include inventing and spreading rumors, talking badly about peers, leaving peers out (social exclusion), gossiping, or betraying friends (McGrath, 2006). Researchers only recently discovered relational aggression due to its status as a covert behavior, or a behavior that is easily hidden. Before relational aggression, it was assumed that boys did most of the aggressing and girls were quite peaceful. Since, researchers have learned that boys and girls are equally relationally aggressive, while

boys are more overtly or physically aggressive (Card et al., 2008). There has been some debate over this. Many researchers' results demonstrate that girls spend their time being relationally aggressive and boys being physically aggressive, with very little overlap of the use of these two forms of aggression (Crick, 1996; Giles & Heyman, 2005; Lagerspetz, Björkqvist, & Peltonen, 1988; Miller, Vaillancourt, & Boyle, 2009). It has been suggested that the method of assessment will lead to different results (e.g., teacher-report, peer-report, self-report). A meta-analysis by Card et al (2008) has quelled the debate for now, demonstrating that across many studies, there is no gender difference in relational aggression, but there is a gender difference favoring boys in physical aggression.

Although this behavior can be observed in both groups of boys and groups of girls, girls see relational aggression as one of the most typical behaviors within their peer groups (Crick, Bigbee, & Howes, 1996). Girls in seventh grade also see relational aggression and physical aggression as equally hurtful. Furthermore, relational aggression increases in frequency as girls grow (Galen & Underwood, 1997). All of these things, combined with the knowledge that relational aggression can lead to psychosocial maladjustment and decreased physical health later in life (Crick, 1997; Crick & Grotpeter, 1995; Coie & Dodge, 1983; Ttofi & Farrington, 2008), leaves us with a true need for reliable and efficient assessment methods.

Development of Relational Aggression

Many factors contribute to the development of relational aggression. One that is consistent in aggression literature is parental, especially maternal, control throughout childhood. An interesting link is that the relation between maternal control and relational (social) aggression is mediated by social evaluative anxiety for girls. This simply means that when a young girl experiences both maternal control and anxiety in social situations brought on by the belief that she is being evaluated, she will be more likely to engage in relational aggression (Loukas, Paulos, & Robinson, 2005). Furthermore, children who are maltreated are more likely to exhibit both relational and physical aggressive tendencies. Specific to

gender, maltreated boys more often engage in physical aggression, while maltreated girls more often engage in relational aggression. Sexual abuse is related to lower levels of physical and higher levels of relational aggression for girls (Cullerton-Sen, Cassidy, Murray-Close, Cicchetti, Crick, & Rogosch, 2008).

Also suggested is that verbal ability and social intelligence are essential for relational aggression (Kaukiainen, Björkqvist, Lagerspetz, Österman, Salmivalli, Rothberg, & Ahlbom, 1999). Verbal ability seems to be paramount to the development of relational aggression. Young children are not often able to use this type of social manipulation because they do not have the words to carry it out. However, preschool aged girls show more relationally aggressive behaviors than preschool aged boys, reflecting females' ability to manipulate language at an early age. Because girls have both more verbal ability and relationally aggressive tendencies at a young age, verbal ability may predict the use of relationally aggressive techniques more for boys than it will for girls (Bonica, Arnold, Fisher, Zeljo, & Yershova, 2003). Research has shown that young children more often rely on physical aggression, and relational aggression develops later along with social skills and verbal ability (Kaukiainen et al., 1999). Furthermore, Miller, Vaillencourt, and Boyle (2009) have demonstrated that physical aggression is likely to develop into relational aggression over the course of time. This finding demonstrates that relational aggression and physical aggression serve essentially the same function, to hurt other people, but children who are skilled verbally will use their words instead of their fists.

Social intelligence is also important in the development of relational aggression. Social intelligence has primarily been linked with prosocial behaviors in the past. More recently, it has been observed to be present in children who are skilled at social manipulation, or relational aggression. A person must be aware of other's feelings, possible reactions, and their own motives to reach a particular end. These are all elements of social intelligence, and all important for successfully engaging in relational aggression (Kaukiainen et al., 1999).

The presence of empathy in a child has been suggested to be a protective factor against the development of relational aggression (Kaukiainen et al., 1999). If a child can put him or herself in another child's position, and see that this form of aggression is hurtful, then it logically follows that the child will be less likely to commit relationally aggressive acts. In the presence of social intelligence and verbal ability, empathy can reduce the probability of a child engaging in relational aggression.

Once it has developed, indirect (relational) aggression seems to remain stable over time. This is contrasted with physical aggression, which tends to decline with age (Miller et al., 2009). Physical aggression is more likely to be punished by its very nature. Therefore, due to the covert nature of relational aggression, it is more likely to be used among children who are verbally and socially skilled.

Current Assessment and Intervention Practices

Assessments thus far for bullying in general and relational aggression specifically have been for the sake of research. Numerous scales have been developed for researchers to discover the correlates, risk, and protective factors surrounding relational aggression (e.g., Crick, Casas, & Mosher, 1997; Crick & Grotpeter, 1995; Crothers, Schreiber, Field, & Kolbert, 2009). The exception is the Olweus Bullying Prevention Program and the Olweus Bully/Victim Questionnaire, which were developed to be used for school-wide assessment and prevention of bullying (Olweus & Limber, 1999). A detailed search of the bullying and relational aggression literature suggests that a screener has not yet been developed for the sole purpose of identification of students currently engaging in or at risk of engaging in relationally aggressive acts.

Many researchers are beginning to turn their attention to assessment and intervention of bullying behaviors. Merrell, Gueldner, Ross, and Isava (2008) reviewed bullying intervention studies and were left with 16 after their criteria were met. This in itself reveals the dearth of aggression intervention research. They reported meaningful interventions for only one-third of the studies. About two-thirds of these studies had a very small positive intervention in place, but Merrell reported these to be "too weak to be

considered meaningful” (Merrell et al., 2008, p. 38). A small percentage of these intervention studies even lead to negative effects, with one of these being a large, negative effect. Intervention for bullying has a long way to go to be considered effective. Reliable, efficient assessment may be integral in arriving at effective interventions.

A more recent meta-analysis conducted by Farrington and Ttofi (2009) puts bullying interventions in a more favorable light. These authors reviewed 30 of the best quality studies meant to evaluate anti-bullying programs. Results showed that programs containing the most elements and lasting the longest were the most effective. This is true for both bullying and victimization. Furthermore, parent involvement was found to be the most important element of all, as this predicts a greater reduction in bullying behaviors. Of all the studies reviewed, the authors found these anti-bullying programs reduced school bullying and victimization by 20-23%. Currently, all interventions are universal, with no evidence of more intensive interventions for bullying behaviors. The authors of this meta-analysis conclude that overall, programs are effective and that the field has improved to a point of reducing school bullying through the use of interventions.

Importance of Screening, Assessment, and Intervention

With these conflicting viewpoints concerning the state of bullying interventions, it is important to note that bullying still exists, and when an intervention is put into place, it might reduce the rate of bullying by about 20% (Farrington and Ttofi, 2009). This may still be considered unacceptable, especially considering the negative outcomes associated with being a bully, victim, or bully-victim. Relational aggression often has less of a power differential than overt bullying. This could indicate that individuals who engage in relationally aggressive acts are also often victims of relational aggression. In light of this fact, the current study will focus on the negative outcomes associated with being a bully-victim.

Students classified as bully-victims are at risk for many negative outcomes. Compared to students who were called “bullies only” or “victims only,” bully-victims are the most likely to be depressed, to

report more psychosomatic symptoms, and to tend to be more anxious than their bully or victim counterparts (Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, 1999; Kaltiala-Heino, 2000). Research has also shown that bully-victims will report more suicidal ideation, have more suicidal behaviors, and have more self-injurious behaviors than other children (Kim, Koh, & Leventhal, 2005). Finally, bully-victims had the most outstanding scores of all students (bullies, victims, and bully-victims) for a number of behavior problems including hyperactivity, low prosocial behavior, and conduct problems (Wolke, Woods, Bloomfield, & Karstadt, 2000). Specifically for relational aggression, Williams, Fredland, Han, Campbell, and Kub (2009) found that relational aggression among young females may result in negative health outcomes.

Considering the breadth negative outcomes, the covert nature of relational aggression and the scant resources for assessment, a universal screening measure is needed to assess for relational aggression within the classroom. A reliable and valid screening tool would aid in selecting appropriate interventions to both prevent new and reduce current occurrences of relational aggression. The purpose of the current research is to develop a screener and evaluate which source is the best informant. This can be seen as a first step for screening development. Teacher-report, self-report, and peer nomination measures will be developed and used. According to the literature review, hypotheses are as follows:

H1: The peer-nomination screener will best identify students involved in relational aggression.

H2: Classification will be good, at or above 80%, for screeners.

H3: Classification and identification will compare well to anchor measures.

Exploratory: Classroom and student characteristics will increase the predictive ability of the screeners.

Method

Participants

Participants were 473 students and 19 teachers from an intermediate school in central Alabama. Each fourth and fifth grade classroom participated in this research. The fourth grade included 260 students (54.9%) and the fifth grade included 213 students (45.1%). There were 225 males (47.5%) and 248 females (52.4%) in the sample. The sample was ethnically diverse, with 266 white/Caucasian students (56.2%), 115 Hispanic students (24.3%), 60 African American students (12.8%), and 11 Asian students (2.3%). Twenty-one students identified themselves as “other” (4.4%). The teachers included in this research were 17 females (89.5%) and 2 males (10.5%). Teachers had a range of experience from 1 to 35 years, with a mean of 9.84 years. Eleven teachers were master’s level (57.9%), 7 had earned only bachelor’s degrees (36.8%), and 1 teacher elected not to answer the question concerning education level (5.2%). Overall, there was no teacher attrition from this study, and 50 students who either were absent on the day of data collection or whose parent’s declined to allow them to participate.

Permission for this research was obtained from the principal, who then had the project approved by her superintendent. Consent from parents was attained passively. Passive consent means that an information sheet was sent home with every potential participant, and if a parent did not wish for their child to take part, they were to return an attached form indicating specifically that.

Measures

Demographic Questionnaire. Demographic information was collected for both student and teacher participants (Appendix C). Primary variables of interest were race/ethnicity and age. The demographics of this school proved to be quite varied, with many Hispanic, African American, Caucasian and Asian students in attendance.

Relational Aggression Screeners. There was a teacher-report screener, self-report screener (for the students to fill out), and peer-nominated screener. Each of these screeners can be found in appendix D. These were short, four- to seven-item questionnaires that identified students within the classroom engaging in and being victimized by relationally aggressive acts. Details of each screener are found below.

Teacher-Report Screener. The teacher-report screener consisted of four items to identify children engaging in relationally aggressive behaviors and children who are victimized by relational aggression. There are two items for aggressive behaviors and two items for victimization. Teachers were presented with a class roll and questions were listed across the top; teachers rated every student in the class from 1-5 (1 being no evidence of behaviors or victimization, and 5 being high evidence of behaviors or victimization).

Self-Report Screener. The self-report screener consisted of six items to identify children engaging in relationally aggressive behaviors and children who are victimized by relational aggression. There are two items to identify children engaging in relationally aggressive behaviors, three items to identify children being victimized by relational aggression, and one prosocial item representing empathy. Students rated themselves as never to always on each item (*never* = 0, *always* = 4; 5-point Likert scale).

Peer Nominated Screener. The peer nominated screener consisted of four items to identify children engaging in relationally aggressive behaviors and children who are victimized by relational aggression. There are two items for aggressive behaviors and two items for victimization. Students were presented with these questions and asked to identify up to three children from their class who fit the description of the question posed. Students were given a class roll to help with recall. Students wrote down only the numbers next to the names of classmates to be identified.

Mono-Method, Mono-Trait Variance. There was an extra item on each screener that should not correlate with the construct of relational aggression. For example, children were asked whether they like

peanut butter and jelly sandwiches. This is necessary because data is being collected at one time instead of over the course of time, so information is being gathered not only about the construct of interest, but also about things like personality and mood. These items were analyzed using partial correlations (Lindell & Whitney, 2001).

Anchor Scale for Relational Aggression. The Children's Social Behavior Scales and the Children's Social Experiences Scales, previously developed and used in research by Crick and colleagues (Crick, 1996; Crick & Bigbee, 1998; Crick & Grotpeter, 1995; Crick, Ostrov, & Werner, 2006; Cullerton-Sen & Crick, 2005), were used as the comparison measures for the current research. The Children's Social Behavior Scale identifies children who are engaging in aggressive behaviors. The Children's Social Experiences Scale identifies children who are being victimized by aggressive behaviors. Crick has developed teacher, self, and peer-report measures, and all three were used. Only the relational aggression sub-scale of each measure was used for the current study. These scales can be found in Appendix E. The details of these scales are found below.

Anchor Measure, Teacher-Report. The Children's Social Behavior Scale (Crick, 1996) and the Children's Social Experiences Scale (Cullerton-Sen & Crick, 2005), teacher-report, were used to compare to the teacher-report screener. The behavior scale has teachers rate four items per student meant to identify students engaging in relational aggression, and the experiences scale has teachers rate three items per student meant to identify students who are being victimized by relational aggression (relational aggression subscale only). The behavior scale, teacher-report, has a Cronbach's α of .83. The subscales of the behavior scale had factor loadings ranging from .63 to .83. The experiences scale, teacher-report, has a Cronbach's α of .82.

Anchor Measure, Self-Report. The Children's Social Behavior Scale (Crick & Grotpeter, 1996) and the Children's Social Experiences Scale (Crick, 1995; Crick & Grotpeter, 1995), self-report, were used to compare to the self-report screener. Both the behavior scale and the experiences scale have five

items (relational aggression subscale only). The behavior scale identified children who admit to engaging in relationally aggressive behaviors, and the experiences scale identified children who feel they are being victimized by these behaviors. The behavior scale, self-report, has a Cronbach's α of .83. The subscales all had factor loadings between .77 and .84. The experiences scale, self-report, has a Cronbach's α of .86 and factor loadings of all subscales between .60 and .79.

Anchor Measure, Peer Nominated. The Children's Social Behavior Scale (Crick & Grotpeter, 1995; Crick, Ostrov, & Werner, 2006) and the Children's Social Experiences Scale (Crick & Bigbee, 1998), peer-nominated, were used to compare to the peer-nominated screener. Both the behavior scale and the experiences scale have five items, and have students identify three other students for each item (relational aggression subscale only). The behavior scale identified students who are believed by other students to be engaging in relationally aggressive behaviors, and the experiences scale identified students who are believed by other students to be victimized by these behaviors. The behavior scale, peer-nominated, has Cronbach's alphas ranging from .82 to .89. When correlated with the aggression subscale of the Teacher Report Form (Achenbach & Rescorla, 2001), $r = .69$.

Procedure

Permission was obtained from the school principal to conduct this research in Shelby County, Alabama. Passive consent was obtained from all possible participants' parents (Appendix A). This was done through collaboration with the school's principal and counselor. Before the project began, the primary researcher obtained a contract with a web-based survey site for a pre-determined timeframe. The forms were be uploaded and organized, so that teachers filled out teacher forms (anchor measure, screener, and demographic questionnaire) and students filled out student forms (anchor measure – self-report, screener – self-report, anchor measure – peer-nominated, screener – peer-nominated, and demographic questionnaire).

The primary researcher obtained classroom rosters from the teachers before data collection. The purpose of this was to number the classroom rosters so that students could write down numbers instead of names of their classmates while filling out the peer-nominated anchor measure and screener to ensure eventual anonymity. Furthermore, only first names were used, so the classroom rolls were converted from first and last names to first names only (with a last initial included if there were more than one of the same names in the classroom). These rolls were projected onto a screen in the computer lab where data collection took place. Another use of the class rolls was to individualize by classroom the teacher-report screeners. Teachers identified students within their own classroom on a grid that had their classroom roll down the side and identifying questions across the top.

The students were given time in computer lab on one day to complete the measures. If any of the students had trouble reading or understanding the items, the teacher and the computer lab technician were present and available to answer questions or to read the questions aloud to students. The teachers completed the measures on their own time. The primary researcher wrote to each classroom participating in the research study before students completed the measures to familiarize students and teachers with the study (Appendix B).

Once data was collected, it was converted to the PAWS Statistics 18 package for analysis. The teacher- and self-report data were left raw and the peer nominated measures were converted to z-scores. Conversion of peer-nominated raw scores to z-scores was necessary because the range of possible peer nominations is so large, and in order to statistically use this data it needed to be in a standardized form. Furthermore, in previous sociometric research, this has been the standard set for processing data (Coie, Dodge, and Coppotelli, 1982)

The risk associated with students completing relational aggression measures is that they may engage in more relationally aggressive behaviors. In the event that this happens, the primary researcher planned to meet with the counselors at this school to design interventions and strategies for dealing with

this. Some ideas included taking privileges away from any student who engage in these behaviors or promoting prosocial behaviors within the classroom and rewarding children for standing up for kids who are being victimized by relational aggression. Preemptively, the primary researcher attempted to guard against this reaction by making students and teachers aware of this risk (Appendix B). No reports of relationally aggressive behaviors were reported following the completion of this project.

Results

Hypothesis 1: The peer-nomination screener will best identify students involved in relational aggression.

To evaluate which screener best identified student involvement in relational aggression, concordance rates among the screeners were calculated first. Complete concordance rates were very low, with only 14, or 3% of students being identified by all three screeners. Partial concordance (identification by any 2 of the 3 screeners) increased identification rates. Sixty students were identified by partial concordance.

Correlations between each screener and the more lenient partial concordance rates were first calculated as an indication of degree of relation between the screener and the concordance rates. The screener most correlated to the partial concordance was the peer-nominated screener, as predicted ($r = .68, p < .01$). Each of the other screeners were significantly correlated with partial concordance rates as well (teacher report: $r = .55, p < .01$; self-report: $r = .45, p < .01$).

To evaluate the degree of relation between each screener and the partial concordance rate further, chi-square analyses were conducted. Chi-square tests of goodness of fit examined whether the observed frequencies (screeners) matched the expected frequencies (concordance rates). Each chi-square analysis between screener and concordance was significant, indicating that the each screener is significantly different from the concordance rates. The peer-nominated screener, identified by bivariate correlation as the screener most related to the concordance rate, resulted in a significant chi-square ($\chi^2 = 79.75, p < .001$). The chi-square statistic for the teacher-report screener was also significant ($\chi^2 = 59.15, p < .001$), along with the chi-square statistic for the self-report screener ($\chi^2 = 65.84, p < .001$).

According to the bivariate correlations, the peer-nominated screener best identifies student involvement in relational aggression. However, according to the chi-square analyses, not one of the screeners adequately agrees with the partial concordance rates for these screeners. The next step is to identify which two screeners used together best identify students involved in relational aggression.

To evaluate this, approximations of r^2 were used. Logistic regression analyses were conducted for hypothesis 2, and this output allowed us to see approximations of the variance accounted for by each combination of 2 screeners when the outcome variable was partial concordance. For the self-report screener and teacher-report screener together, between 29.7% and 56.7% of the variance was accounted for by the screeners (Cox & Snell $R^2 = .297$; Nagelkerke $R^2 = .567$). For the self-report screener and peer-nominated screener together, between 32.1% and 61.7% of the variance was accounted for by the screeners (Cox & Snell $R^2 = .321$; Nagelkerke $R^2 = .617$). Finally, for the teacher-report screener and the peer-nominated screener together, between 34.8% and 66.8% of the variance was accounted for by the screeners (Cox & Snell $R^2 = .348$; Nagelkerke $R^2 = .668$). Based on these results, the teacher-report screener and the peer-nominated screener, when used together, will best identify students involved in relational aggression. This will be evaluated further in hypothesis 2.

Hypothesis 2: Classification will be good, at or above 80%, for screeners.

To evaluate whether classification was adequate for the screeners, logistic regression and ROC curve analyses were conducted on each combination of two screeners. Logistic regression analyses demonstrated the amount of risk in having a certain outcome (involvement in relational aggression) associated with a one unit increase in the screeners. This analysis also left us with a classification table that showed the number of correct and incorrect classifications based on statistical agreement of predictor (two screeners) and outcome (concordance rates) variables.

Logistic regression analyses were run to predict a dichotomous outcome from a set of continuous predictors. The dichotomous outcome was “always identified” or “not identified” by two of the three screeners. The predictors were total scores on each combination of two of the three screeners. A total of three logistic regression analyses were computed.

All predictors are reported, including corresponding odds ratios. $\text{Exp}(B)$ is the odds ratio, indicating that for every one unit of change in the screener, the odds are either increased or decreased for

membership in the outcome variable. All values greater than one indicate that the odds have increased for group membership. If the value is less than one, the odds of group membership have decreased. The difference between the value of $\text{Exp}(B)$ and one can be interpreted as the percentage by which you can expect an increase or decrease following a one-unit change on the screeners, or predictor variable (Field, 2005).

Prediction of group membership is important, but is only one part of a logistic regression analysis. Classification accuracy tables are also important for visualizing how well the model is placing these children, based on the predictors (screeners) and the outcome variable (the concordance rates). Classification tables allow us to see the sensitivity of our predictors, or how well we are able to find children who are actually involved in relational aggression, as well as the specificity of our predictors, or how well we are able to accurately identify children who are not involved in relational aggression.

The first Logistic Regression analysis evaluated the classification accuracy of the self-report screener and the teacher-report screener, based on partial concordance rates. Both the self-report and the teacher-report screeners had significant odds ratios (self-report: $\text{Exp}(B) = 1.66$; teacher-report: $\text{Exp}(B) = 1.67$). These odds ratios indicate that a one unit increase in the self-report screener is associated with a 66% increase in belonging to the group involved in relational aggression, and a one unit increase in the teacher-report screener is associated with a 67% increase in the same.

Using the self-report and teacher-report screeners, we were able to correctly classify 92.3% of students overall. When students were identified as not being involved in relational aggression, these screeners were 97.7% accurate. When students were identified as being involved in relational aggression, these screeners were 53.3% accurate. Overall, specificity, or correctly identifying when relational aggression is not present, was much better than sensitivity, or correctly identifying when relational aggression is present. Tables 1 and 2 demonstrate the graphic results of the first logistic regression.

Table 1. Logistic Regression Output, Self-Report and Teacher-Report Screeners

	B	S.E.	Wald	df	Sig.	Exp(B)
Self-Report Screener	.51	.07	46.91	1	.001	1.66
Teacher-Report Screener	.51	.07	63.44	1	.001	1.67

B = coefficient for the constant; S.E. = standard error around the coefficient for the constant; Wald = Wald chi-square test to evaluate the null hypothesis that the constant equals 0; df = degrees of freedom associated with the Wald statistic; Sig = significance level associated with the Wald chi-square statistic; Exp(B) = odds ratio, odds are easier to interpret than the coefficient (B)

Table 2. Classification Table, Self-Report and Teacher Report Screeners

Observed		Predicted		
		Concordance x Screener		Percentage Correct
		No Relational Aggression	Relational Aggression	
Concordance x Screener	No Relational Aggression	421	10	97.7%
	Relational Aggression	28	32	53.3%
Overall Percentage				92.3%

The second logistic regression analysis evaluated the classification accuracy of the self-report and peer nominated screener, based on partial concordance. Both the self-report and peer nominated screener had significant odds ratios (self-report: $\text{Exp}(B) = 1.47$; peer nominated: $\text{Exp}(B) = 1.28$). These odds ratios indicate that a one unit increase in the self-report screener, in this equation, is associated with a 47% increase in belonging to the group involved in relational aggression, and a one unit increase in the peer nominated screener is associated with a 28% increase in the same.

Using the self-report and peer nominated screener, we were able to correctly classify 92.0% of students overall. When students were identified as not being involved in relational aggression, these screeners were 96.8% accurate. When students were identified as being involved in relational aggression,

these screeners were 57.6% accurate. Overall, specificity was much better than sensitivity. Tables 3 and 4 demonstrate the graphic results of the second logistic regression.

Table 3. Logistic Regression Output, Self-Report and Peer-Nominated Screeners

	B	S.E.	Wald	df	Sig.	Exp(B)
Self-Report Screener	.38	.07	27.95	1	.001	1.47
Peer Nominated Screener	.25	.03	66.98	1	.001	1.28

B = coefficient for the constant; S.E. = standard error around the coefficient for the constant; Wald = Wald chi-square test to evaluate the null hypothesis that the constant equals 0; df = degrees of freedom associated with the Wald statistic; Sig = significance level associated with the Wald chi-square statistic; Exp(B) = odds ratio, odds are easier to interpret than the coefficient (B)

Table 4. Classification Table, Self-Report and Peer-Nominated Screeners

Observed		Predicted		
		Concordance x Screener		Percentage Correct
		No Relational Aggression	Relational Aggression	
Concordance x Screener	No Relational Aggression	417	14	96.8%
	Relational Aggression	25	34	57.6%
Overall Percentage				92.0%

The third logistic regression analysis evaluated the classification accuracy of the teacher-report and peer nominated screener, based on partial concordance. Both the teacher-report and peer nominated screener had significant odds ratios (teacher-report: $\text{Exp}(B) = 1.57$; peer nominated: $\text{Exp}(B) = 1.29$). These odds ratios indicate that a one unit increase in the teacher-report screener, in this equation, is associated with a 57% increase in belonging to the group involved in relational aggression, and a one unit increase in the peer nominated screener, in this equation, is associated with a 29% increase in the same.

Using the teacher-report and peer nominated screener, we were able to correctly classify 93.1% of students overall. When students were identified as not being involved in relational aggression, these screeners were 97.4% accurate. When students were identified as being involved in relational aggression, these screeners were 61.0% accurate. Overall, specificity was much better than sensitivity. Tables 5 and 6 demonstrate graphically the results of the third logistic regression.

Table 5. Logistic Regression Output, Teacher-Report and Peer-Nominated Screeners

	B	S.E.	Wald	df	Sig.	Exp(B)
Teacher-report screener	.45	.07	39.95	1	.001	1.57
Peer Nominated Screener	.25	.03	59.39	1	.001	1.29

B = coefficient for the constant; S.E. = standard error around the coefficient for the constant; Wald = Wald chi-square test to evaluate the null hypothesis that the constant equals 0; df = degrees of freedom associated with the Wald statistic; Sig = significance level associated with the Wald chi-square statistic; Exp(B) = odds ratio, odds are easier to interpret than the coefficient (B)

Table 6. Classification Table, Teacher-Report and Peer-Nominated Screeners

Observed		Predicted		
		Concordance x Screener		Percentage Correct
		No Relational Aggression	Relational Aggression	
Concordance x Screener	No Relational Aggression	420	11	97.4%
	Relational Aggression	23	36	61.0%
Overall Percentage				93.1%

Each combination of two screeners was able to correctly classify students above 80%, as predicted. Also, going back to hypothesis 1, the teacher-report and peer nominated screeners seem to be able to best identify students involved in relational aggression, based on the converging evidence of the R^2 correlations and the logistic regression analyses.

Receiver Operating Characteristic (ROC) Curve Analyses were also conducted for each combination of two screeners, with the outcome again being concordance rates. ROC curve analysis yields a graph that represents sensitivity by false positive rates. In other words, the graph is a representation of the trade-off between sensitivity and specificity. The more area you have under the curve, the better quality screener you have in terms of specificity and sensitivity.

In the first ROC curve analysis, the self-report screener and teacher-report screener were entered as predictors while partial concordance was entered as the outcome variable. For the self-report screener, the area under the curve was 81.9%. For the teacher-report screener, the area under the curve was 86.1%. For these screeners together, classification was good, but not excellent (Zweig & Campbell, 1993). This ROC curve is represented in Figure 1.

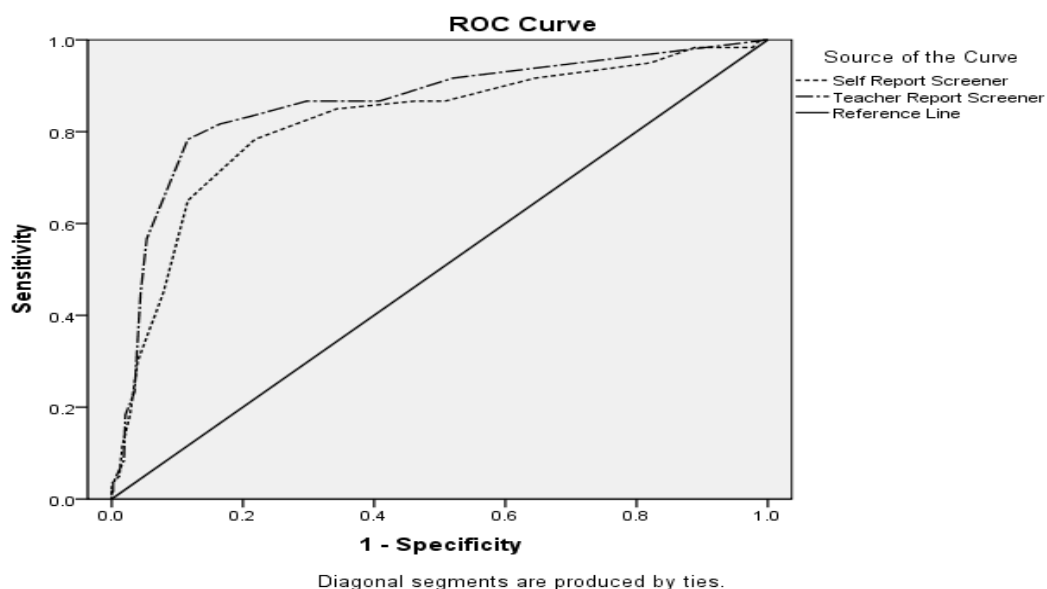


Figure 1. Receiver Operating Characteristic Curve for Self-Report and Teacher-Report Screeners

In the second ROC curve analysis, the self-report screener and peer nominated screener were entered as predictors, while partial concordance was entered as the outcome variable. In this analysis, the area under the curve for the self-report screener was 81.8%. For the peer nominated screener, the area under the curve was 93.1%. For these screeners together, classification was good, and better than the previous analysis, but still not excellent. This ROC curve is presented in Figure 2.

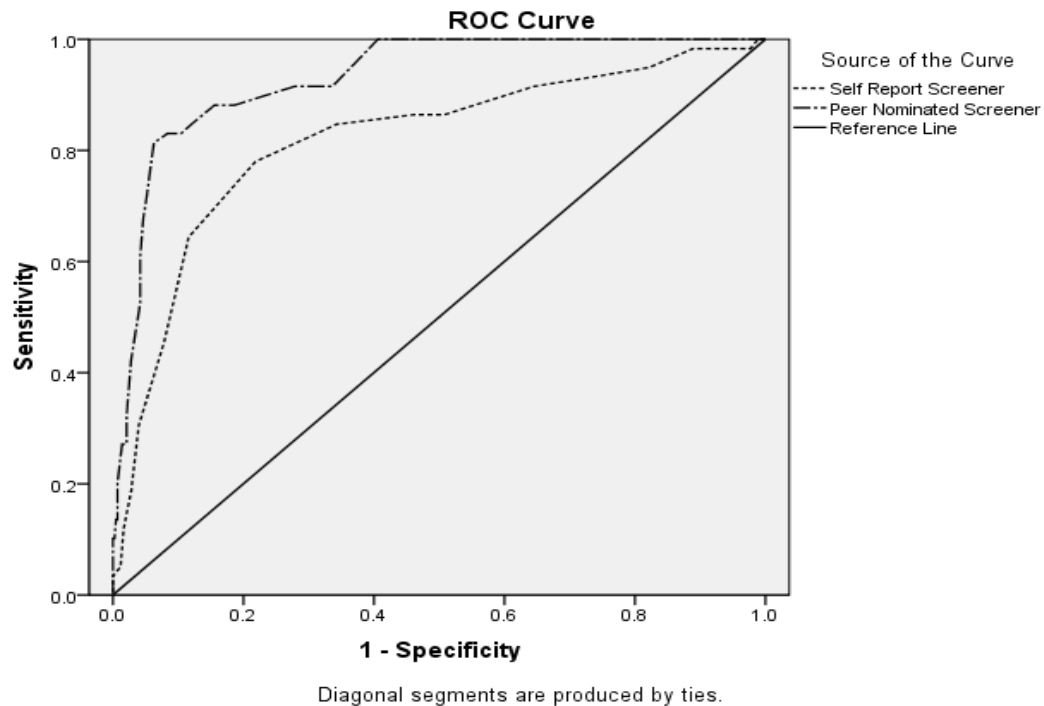


Figure 2. Receiver Operating Characteristic Curve for Self-Report and Peer-Nominated Screeners

In the third ROC curve analysis, the teacher-report screener and the peer nominated screener were entered as predictors, while partial concordance was entered as the outcome variable. In this analysis, the area under the curve for the teacher-report screener was 85.9%. In this analysis, the area under the curve for the peer nominated screener was 93.1%. For these screeners together, classification was good, and better than the previous two analyses, but still not excellent. This ROC curve is presented in Figure 3.

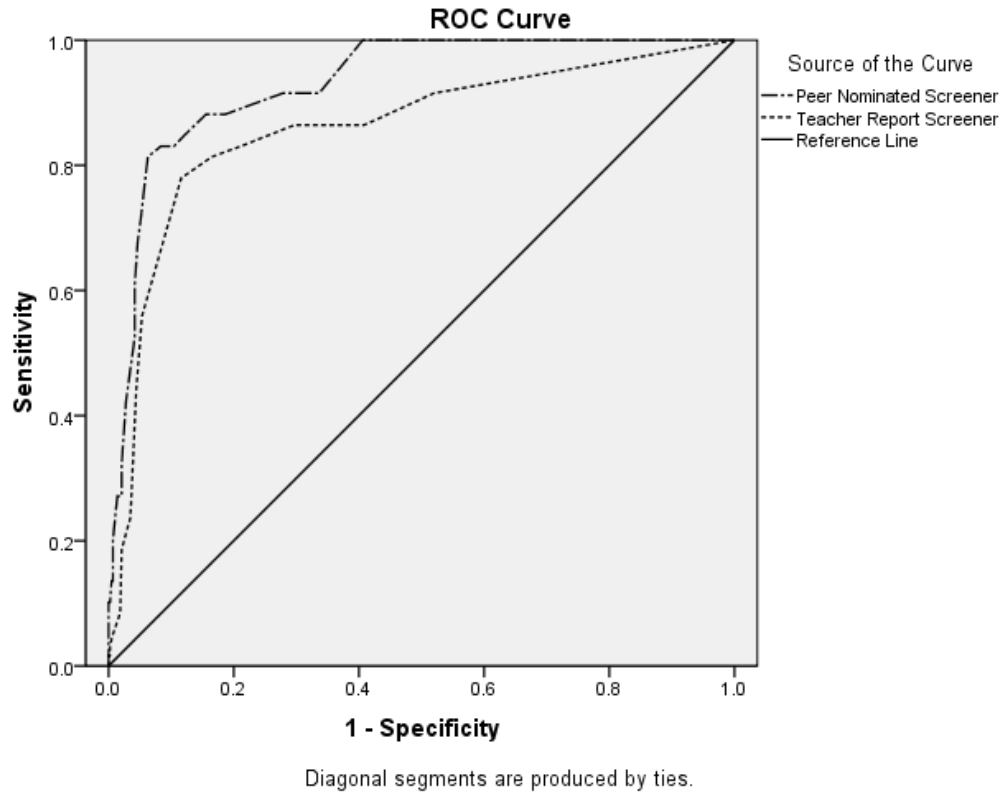


Figure 3. Receiver Operating Characteristic Curve for Teacher-Report and Peer-Nominated Screeners

These results indicate that classification screeners are consistently above 80%, as predicted. They also point to the peer nominated screener as the screener with the least trade-off between sensitivity and specificity. Finally, the converging evidence reliably points to the peer nominated and teacher-report screeners as the best combination for identifying students involved in relational aggression.

Hypothesis 3: Classification and identification will compare well to anchor measures.

To evaluate whether screeners classified students as well as the existing anchor measures, logistic regression analyses and ROC curve analyses were conducted on the anchor measures. The same procedures as those used above for the screeners were done for the anchor measure and corresponding partial concordance. These results were compared visually to the results obtained for the screeners to evaluate the similarities in classification between anchor measure and screener.

The first logistic regression analysis evaluated the classification accuracy of the self-report and the teacher-report anchor measures, based on partial concordance rates. Both the self-report and the teacher-report anchor measures had significant odds ratios (self-report: $\text{Exp}(B) = 1.27$; teacher-report: $\text{Exp}(B) = 1.31$). These odds ratios indicate that a one unit increase in the self-report anchor measure is associated with a 27% increase in belonging to the group involved in relational aggression, and a one unit increase in the teacher-report anchor measure is associated with a 31% increase in the same.

Using the self-report and teacher-report anchor measures, classification accuracy was 92.4% overall. This is improved from the predicted 89.6% before the variables were entered into the equation. When students were identified as not being involved in relational aggression, these measures were 97.7% accurate. When students were identified as being involved in relational aggression, these measures were 47.1% accurate. Overall, specificity, or correctly identifying when relational aggression is not present, was much better than sensitivity, or correctly identifying when relational aggression is present. The results to this logistic regression are presented graphically in Tables 7 and 8.

Table 7. Logistic Regression Output, Self-Report and Teacher-Report Anchor Measures

	B	S.E.	Wald	df	Sig.	Exp(B)
Self-report anchor measure	.24	.04	33.75	1	.001	1.27
Teacher-report anchor measure	.27	.03	61.76	1	.001	1.31

B = coefficient for the constant; S.E. = standard error around the coefficient for the constant; Wald = Wald chi-square test to evaluate the null hypothesis that the constant equals 0; df = degrees of freedom associated with the Wald statistic; Sig = significance level associated with the Wald chi-square statistic; $\text{Exp}(B)$ = odds ratio, odds are easier to interpret than the coefficient (B)

The second logistic regression analysis evaluated the classification accuracy of the self-report and the peer nomination anchor measures, based on partial concordance rates. Both the self-report and the teacher-report anchor measures had significant odds ratios (self-report: $\text{Exp}(B) = 1.22$; peer nomination: $\text{Exp}(B) = 1.15$). These odds ratios indicate that a one unit increase in the self-report anchor measure is

associated with a 22% increase in belonging to the group involved in relational aggression, and a one unit increase in the teacher-report anchor measure is associated with a 15% increase in the same.

Table 8. Classification Table, Self-Report and Teacher-Report Anchor Measures

Observed		Predicted		
		Concordance x Anchor Measure		Percentage Correct
		No Relational Aggression	Relational Aggression	
Concordance x Anchor Measure	No Relational Aggression	429	10	97.7%
	Relational Aggression	27	24	47.1%
Overall Percentage				92.4%

Using the self-report and peer nomination anchor measures, classification accuracy was 94.1% overall. This is improved from the predicted 89.6% before the variables were entered into the equation. When students were identified as not being involved in relational aggression, these measures were 97.9% accurate. When students were identified as being involved in relational aggression, these measures were 60.8% accurate. Overall, specificity was better than sensitivity. The results of this logistic regression are presented graphically in Tables 9 and 10.

Table 9. Logistic Regression Output, Self-Report and Peer-Nominated Anchor Measures

	B	S.E.	Wald	df	Sig.	Exp(B)
Self-report anchor measure	.20	.04	23.79	1	.001	1.22
Peer nominated anchor measure	.14	.02	62.52	1	.001	1.15

B = coefficient for the constant; S.E. = standard error around the coefficient for the constant; Wald = Wald chi-square test to evaluate the null hypothesis that the constant equals 0; df = degrees of freedom associated with the Wald statistic; Sig = significance level associated with the Wald chi-square statistic; Exp(B) = odds ratio, odds are easier to interpret than the coefficient (B)

Table 10. Classification Table, Self-Report and Peer-Nominated Anchor Measures

Observed		Predicted		
		Concordance x Anchor Measure		Percentage Correct
		No Relational Aggression	Relational Aggression	
Concordance x Anchor Measure	No Relational Aggression	430	9	97.9%
	Relational Aggression	20	31	60.8%
Overall Percentage				94.1%

The third logistic regression analysis evaluated the classification accuracy of the teacher-report and the peer nomination anchor measures, based on partial concordance rates. Both the teacher-report and the teacher-report anchor measures had significant odds ratios (teacher-report: $\text{Exp}(B) = 1.26$; peer nomination: $\text{Exp}(B) = 1.13$). These odds ratios indicate that a one unit increase in the self-report anchor measure is associated with a 26% increase in belonging to the group involved in relational aggression, and a one unit increase in the teacher-report anchor measure is associated with a 13% increase in the same.

Using the teacher-report and peer nomination anchor measures, classification accuracy was 94.5% overall. This is improved from the predicted 89.6% before the variables were entered into the equation. When students were identified as not being involved in relational aggression, these measures were 97.7% accurate. When students were identified as being involved in relational aggression, these measures were 66.7% accurate. Overall, specificity was better than sensitivity. The results of this logistic regression are presented graphically in Tables 11 and 12.

Table 11. Logistic Regression Output, Teacher-Report and Peer-Nominated Anchor Measures

	B	S.E.	Wald	df	Sig.	Exp(B)
Teacher-report anchor measure	.23	.04	36.64	1	.001	1.26
Peer nominated anchor measure	.13	.02	47.77	1	.001	1.13

B = coefficient for the constant; S.E. = standard error around the coefficient for the constant; Wald = Wald chi-square test to evaluate the null hypothesis that the constant equals 0; df = degrees of freedom associated with the Wald statistic; Sig = significance level associated with the Wald chi-square statistic; Exp(B) = odds ratio, odds are easier to interpret than the coefficient (B)

Table 12. Classification Table, Teacher-Report and Peer-Nominated Anchor Measures

Observed		Predicted		
		Concordance x Anchor Measure		Percentage Correct
		No Relational Aggression	Relational Aggression	
Concordance x Anchor Measure	No relational Aggression	429	10	97.7%
	Relational Aggression	17	34	66.7%
Overall Percentage				94.5%

ROC curve analyses were used to evaluate this hypothesis as well. In the first ROC curve analysis, the self-report anchor measure and teacher-report anchor measure were entered as predictors while partial concordance for the anchor measures was entered as the outcome variable. For the self-report anchor measure, the area under the curve was 80.0%. For the teacher-report screener, the area under the curve was 88.2%. For these measures together, classification was good, but not excellent. This ROC curve is presented in Figure 4.

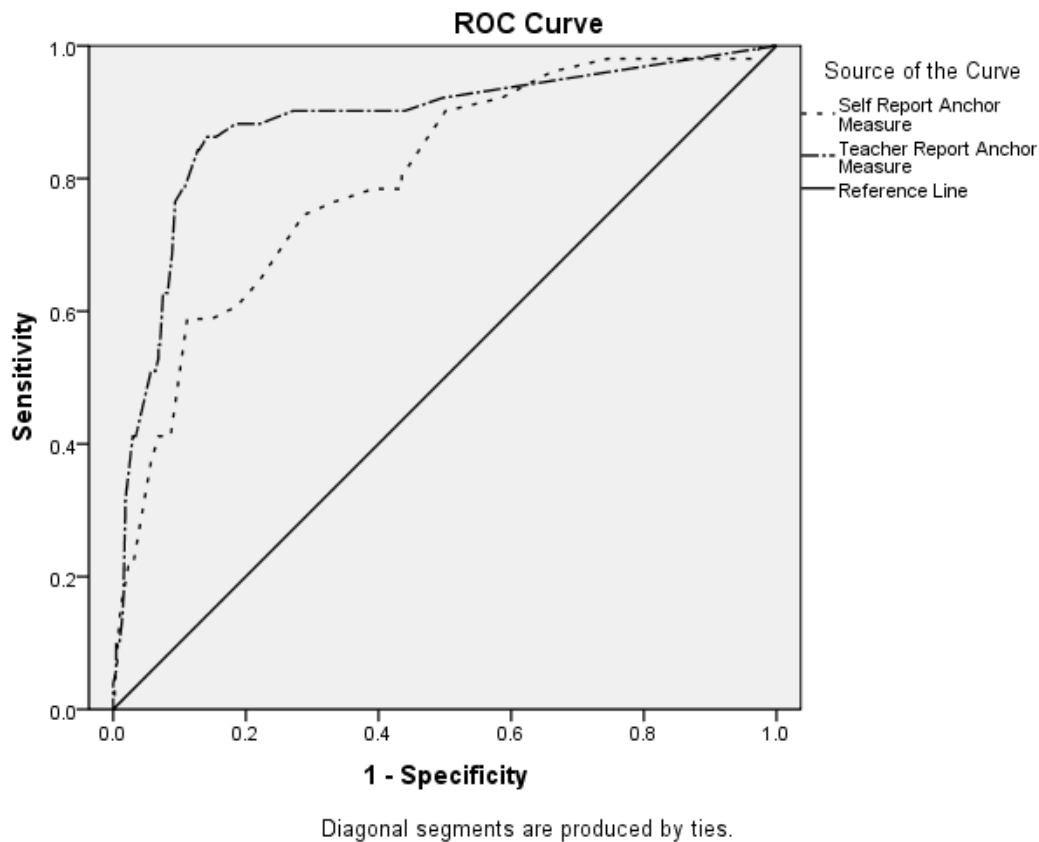


Figure 4. Receiver Operating Characteristic Curve for Self-Report and Teacher-Report Anchor Measures

In the second ROC curve analysis, the self-report anchor measure and peer nominated anchor measure were entered as predictors, while partial concordance was entered as the outcome variable. In this analysis, the area under the curve for the self-report anchor measure was 80.0%. For the peer nominated anchor measure, the area under the curve was 94.9%. For these measures together, classification was good, and better than the previous analysis, but still not excellent. This ROC curve is presented in Figure 5.

In the third ROC curve analysis, the teacher-report anchor measure and the peer nominated anchor measure were entered as predictors, while partial concordance was entered as the outcome

variable. In this analysis, the area under the curve for the teacher-report screener was 88.2%. In this analysis, the area under the curve for the peer nominated screener was 94.9%. For these measures together, classification was good, and better than the previous two analyses, but still not excellent. This ROC curve is presented in Figure 6.

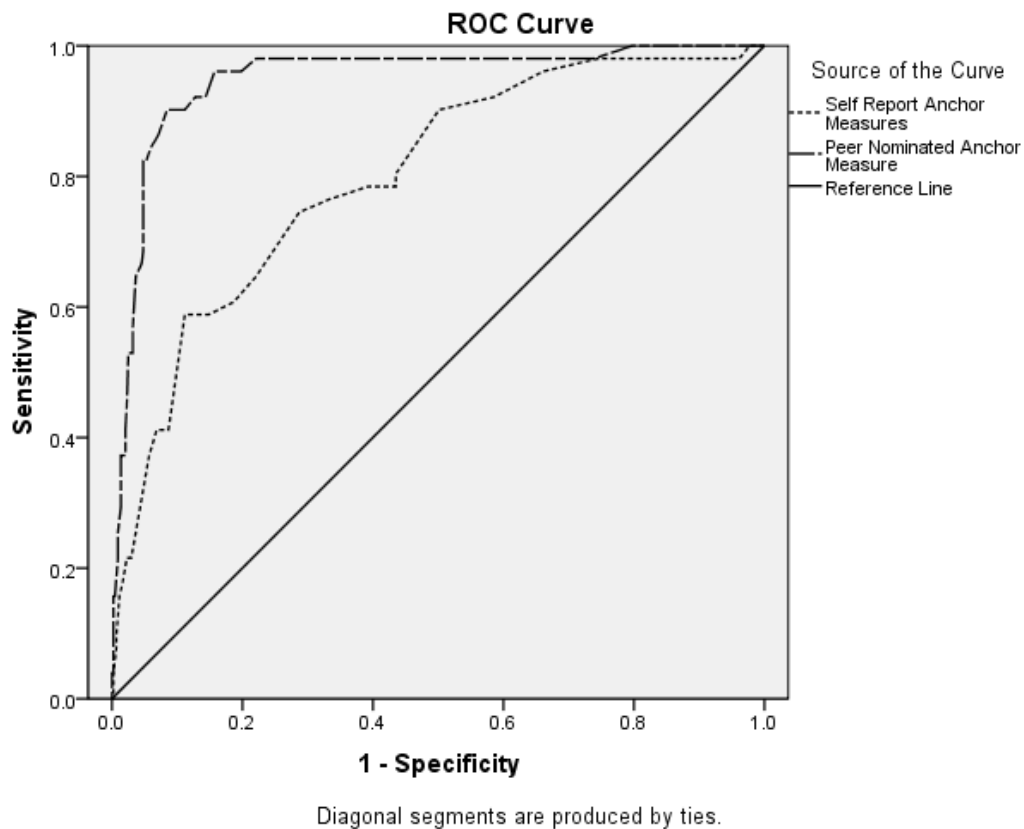


Figure 5. Receiver Operating Characteristic Curve for Self-Report and Peer-Nominated Anchor Measures

These analyses demonstrate that classification for the anchor measures is similar to classification for the screening tools. The screener seems to be as accurate as the anchor measure in identifying student involvement in relational aggression.

To evaluate whether screeners worked as well as the anchor measures in identifying students involved in relational aggression, correlation matrices and chi-square analyses were used. Correlation matrices were computed for each screener-anchor measure dyad (for example, the peer nomination

screeners were compared to the peer-nomination anchor measure) to demonstrate the degree of relation between each anchor measure and its corresponding screener. Chi-square analyses were also done on each screener-anchor measure dyad. Chi-square goodness-of-fit-analyses examined whether the observed frequencies (screener) matched the expected frequencies (anchor measure).

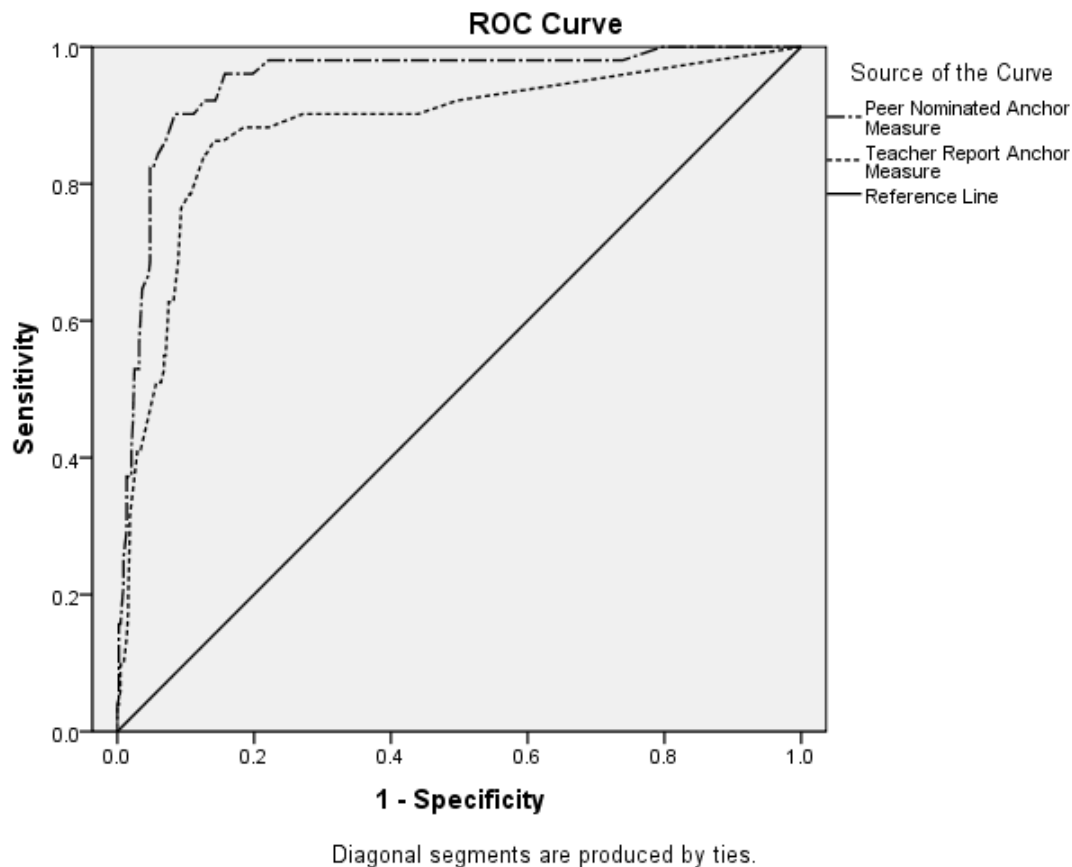


Figure 6. Receiver Operating Characteristic Curve for Teacher-Report and Peer-Nominated Anchor Measures

All correlations between all screener-anchor measure dyads were significant. First, the self-report screener was compared to the self-report anchor measure, and the resulting Pearson correlation was significant ($r = .66, p < .01$). Second, the teacher report screener was compared to the teacher report anchor measure, which also resulted in a significant correlation ($r = .76, p < .01$). Finally, the peer-

nominated screener was compared to the peer-nominated anchor measure. This Pearson correlation was also significant ($r = .82, p < .01$). The correlation table is listed as Table 13.

Table 13. Correlations between Screeners and Anchor Measures

		Correlations					
		TotalScore _SRscreene r	TotalScore _SRanchor	TotalScore _TRscreene r	TotalScore _TRanchor	TotalScore _PNscreene r	TotalScore _PNanchor
TotalScore_SRscreener	Pearson Correlation Sig. (2-tailed)	1	.661** .000	.152** .001	.186** .000	.333** .000	.328** .000
TotalScore_SRanchor	Pearson Correlation Sig. (2-tailed)	.661** .000	1	.140** .002	.172** .000	.310** .000	.344** .000
TotalScore_TRscreener	Pearson Correlation Sig. (2-tailed)	.152** .001	.140** .002	1	.759** .000	.406** .000	.340** .000
TotalScore_TRanchor	Pearson Correlation Sig. (2-tailed)	.186** .000	.172** .000	.759** .000	1	.417** .000	.445** .000
TotalScore_PNscreener	Pearson Correlation Sig. (2-tailed)	.333** .000	.310** .000	.406** .000	.417** .000	1	.823** .000
TotalScore_PNanchor	Pearson Correlation Sig. (2-tailed)	.328** .000	.344** .000	.340** .000	.445** .000	.823** .000	1

**. Correlation is significant at the 0.01 level (2-tailed).

The chi-square tests for each screener – anchor measure dyad were significant, indicating that each screener was different from each anchor measure, which is not what was hypothesized. First, the self-report screener was compared statistically to the self-report anchor measure. The screener did differ from the anchor measure, $\chi^2 (1, N = 502) = 92.66, p < .05$. Second, the teacher report screener was

compared statistically to the teacher report anchor measure. The screener did differ from the anchor measure, $\chi^2 (1, N=502) = 141.17, p < .05$. Finally, the peer nominated screener was compared statistically to the peer nominated anchor measure. The screener did differ from the anchor measure, $\chi^2 (1, N = 502), = 224.09, p < .05$. These results are displayed graphically in Tables 14, 15, and 16.

Table 14. Chi Square Analyses Output, Self-Report, Screener and Anchor Measure

Identified Self-Report Anchor Measure		Identified Self-Report Screener	
		No Relational Aggression	Relational Aggression
0	Expected Count	378	45
	Actual Count	348	75
1	Expected Count	35	44
	Actual Count	65	14

Table 15. Chi Square Analyses Output, Teacher-Report, Screener and Anchor Measure

Identified Teacher-Report Anchor Measure		Identified Teacher-Report Screener	
		No Relational Aggression	Relational Aggression
0	Expected Count	378	41
	Actual Count	339.2	79.8
1	Expected Count	26	54
	Actual Count	64.8	15.2

Hypothesis 3 was partially supported by the data. First of all, anchor measure classification compares well to screener classification. Secondly, the screeners were correlated with the anchor measures, but the chi-square tests for goodness-of-fit suggested that the screeners and anchor measures

were significantly different from one another. These results indicate that for their intended purposes, screeners and anchor measures are similar (i.e., they classify children in the same ways), but that the screeners and anchor measures identify different or different amounts of children.

Table 16. Chi Square Analyses Output, Peer-Nominated, Screener and Anchor Measure

Identified Peer Nominated Anchor Measure		Identified Peer Nominated Screener	
		No Relational Aggression	Relational Aggression
0	Expected Count	401	25
	Actual Count	360.8	65.2
1	Expected Count	14	50
	Actual Count	54.2	9.8

Exploratory Hypothesis: Classroom and student characteristics will increase the predictive ability of the screeners.

To evaluate whether characteristics of students and classrooms increased the predictive ability of the screeners, a hierarchical multiple regression analysis was used. In the first block, the teacher-report screener total scores and the peer-nominated screener total scores were entered. We chose these because they together had the highest classification rates and the most impressive receiver operating characteristic curve. In the second block, sex of the student, grade of the student, race/ethnicity of the student, sex of the teacher, teacher years' experience, whether or not the teacher had a master's degree, whether the students usually work alone, in groups or both, whether the teachers notice students talking about other students and the consequences for this behavior, and whether the teachers notice students excluding other students and the consequences for this behavior were all entered. The criterion variable for this analysis was the partial concordance for the screeners. The outcomes of interest were R^2 change and the significance levels of each of the predictor variables. The outcome of R^2 change is important because it indicates additional variance explained by the added variable.

The original R^2 for the first block of predictors was significant ($R^2 = .61, p < .001$). The R^2 after the second block of predictors was entered was also significant, as was the degree of change ($R^2 = .63, p < .001$; R^2 change = .02, $F_{\text{change}}(11, 455) = 2.19, p < .05$). Adding the second block of predictor variables significantly changed the predictive ability of the screeners.

Although adding these predictor variables increased the predictive ability of the screeners according to the R^2 change statistic, each of the predictors were not significant additions in and of themselves. The original screeners were significant (teacher report: $t = 12.33, p < .001$; peer nominated: $t = 18.13, p < .001$). After the second block was entered, those two remained significant, and only three others in the new block became significant. Whether or not the teachers had a master's degree was significant ($t = 2.01, p < .05$). The direction of beta indicates that those teachers without a master's degree were better at identifying students consistent with the concordance rates than were those teachers with a master's degree. Secondly, whether teachers notice students talking about other students was significant in the final equation ($t = -3.95, p < .001$). The direction of beta indicates that teachers who notice students talking about their peers are better able to identify these students according to the concordance rates. Finally, whether teachers notice students excluding other students was significant in the final equation ($t = 3.70, p < .001$). The direction of beta indicates that teachers who do not notice exclusion are better able to identify students according to the concordance rates.

Adding classroom and student characteristics did increase the predictive ability of the screeners, but not each classroom or student characteristic was important in the final regression equation. The important factors included the screeners themselves, whether teachers had obtained a master's degree, and whether they noticed relationally aggressive behaviors from their students.

Discussion

Based on the results of this project, the peer nominated screener best identifies student involvement in relational aggression. However, two screeners together may work better than one screener alone. If this is true, the results of this project suggest that the teacher report screener and the peer-nominated screener should be used together to identify relationally aggressive activity in the schools. Each of these screeners can be administered quickly and easily.

Furthermore, the screeners developed for this project compare well to the anchor measures already in use, indicating that a shorter, more efficient method of identifying relational aggression in the classroom is available. Classification for both the screener and anchor measure teacher and peer nominated measures was above ninety percent. This indicates that the screening tools are not only more efficient, but can be equally effective as anchor measures.

Beyond understanding which screener or screeners can best identify relational aggression in the classroom, and ensuring that the screeners are as effective as the anchor measures in this identification process, this project set out to explore some classroom and student variables that may affect relational aggression. First of all, a teacher having obtained a master's degree may actually be a risk factor for poorer identification of relational aggression in the classroom. This is a difficult result to explain. Perhaps other covariates beyond the scope of this study influenced the result and further investigation is warranted. Secondly, teachers who notice their students talking about other students were better at identifying students involved in relational aggression. This result is relatively simple to explain. Teachers who are tuned in to their classes and who notice these negative behaviors taking place are better able to then identify students who are engaging in these behaviors. Finally, teachers who do not notice exclusion within their classroom were better able to identify students involved in relational aggression. Again, this result is difficult to explain and may warrant further investigation. Perhaps within this school, talking about other students is the primary way students are relationally aggressive. If this is the case, not

noticing exclusion within the classroom does not have to equal teacher negligence; not noticing social exclusion could perhaps mean that social exclusion is less of a problem at this particular school.

Looking at teacher, student, and classroom characteristics not only let us explore what factors are significant, but also what factors are not significant in the identification of relational aggression. First of all, the sex and grade of the student was not ultimately important in the final model. In this study, no difference exists between boys and girls in the use of relational aggression, and the use of relational aggression did not change with age. Also interesting is that the sex of the teacher and the years of experience of the teacher were unimportant in the identification of relational aggression. There were only two male teachers, but males and females alike seemed to identify relational aggression in comparative ways. Finally, years of teaching experience was unimportant. This is surprising, because there are arguments for why younger teachers may be better or worse, and for why older teachers may be better or worse, yet teachers seem to identify relational aggression equally well across age or teaching experience.

The consequences teachers give for students' engaging in relationally aggressive behaviors is worth mentioning. Consequences did not turn out to be significant in the final model, but the qualitative responses teachers gave are interesting. Sixty-three percent of teachers reported that the consequence for either talking badly about another student or excluding another student was to pull that child out and talk to him or her about what happened. This could be considered either escape (taking the child out of class) or attention (acknowledging the behavior by talking to the child about it). If the behavior in question is maintained by any sort of functional consequence, this could be helping to promote the behavior. Granted, this behavior is exceedingly complex and likely cannot be boiled down to "maintained by attention," but teacher consequences of this behavior should be examined further and perhaps manipulated experimentally.

Limitations and Future Directions

While these results are encouraging for the use of screeners in the place of longer identification measures for relational aggression in grades four and five, this project was limited in several ways. First of all, while the sample was ethnically diverse, the population this sample was drawn from is of a generally middle to high socioeconomic status. The results may not generalize well to children of low socioeconomic status. Second, these students were drawn from the fourth and fifth grades only, meaning that this sample may represent a limited age range for the topic. Also, this is potentially a young age range for the topic, though about thirteen percent of students were identified based on partial concordance.

Another concern is that of construct underrepresentation. The screener only focused on talking badly about peers and social exclusion. Other behaviors related to relational aggression that are overlooked by this screener include lying, spreading rumors, manipulating friendships for social gain, and cyber bullying. Cyber bullying is an important new topic in the area of relational aggression, as communication can often be anonymous and there are several social media sites by which to tarnish other's reputations. However, the screener developed for this project compared well to the anchor measure, which measures many of these other behaviors.

Future directions for this research include correcting many of the limitations of this project, and exploring further the results of the final and exploratory hypothesis. First of all, future researchers in this area could extend the age range, including both younger and older students. Secondly, future research could include a more socioeconomically diverse sample. It may also be of interest to attempt to identify children at risk of engaging in or being victimized by relational aggression before it starts. To do this, correlates, risk, and protective factors should be compiled and made into a screening tool or questionnaire and then compared to an established questionnaire to evaluate its effectiveness in identifying children involved in, or at risk for being involved in, relational aggression.

Finally, it may be interesting to further explore the environments in which relational aggression tends to exist. The finding that teachers without master's degrees were better able to identify relational aggression in the classroom is puzzling, as was the finding that not noticing social exclusion led to better identification of relational aggression. These variables should be examined further. It would also be interesting to further evaluate the consequences of relational aggression within the classroom. While these consequences were not significant in this project, what teachers do immediately after noticing relational aggression is logically related to whether the behavior continues or not. This is ultimately where this research should be taken – to the effective elimination or control of this behavior.

References

- Achenbach, T.M. & Rescorla, L.A. (2001). *Manual for ASEBA school-age forms and profiles*. Burlington: University of Vermont, Research Center for Children, Youth, and Families.
- Björkqvist, K. (2001). Different names, same issue. *Social Development, 10*, 272-274.
- Bonica, C., Arnold, D.H., Fisher, P.H., Zeljo, A., & Yershova, K. (2003). Relational aggression, relational victimization, and language development in preschoolers. *Social Development, 12*, 551-562.
- Brendgen, M., Dionne, G., Girard, A., Boivin, M., Vitaro, F., & Périusse, D. (2005). Examining genetic and environmental effects on social aggression: A study of 6-year old twins. *Child Development, 76*, 930-946.
- Card, N.A., Stucky, B.D., Sawalani, G.M., & Little, T.D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*, 1185-1229.
- Coie, J.D., & Dodge, K.A. (1983). Continuities and changes in children's social status: A five-year longitudinal study. *Merrill-Palmer Quarterly, 29*, 261-281.
- Coie, J.D., Dodge, K.A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology, 18*, 557-570.
- Crick, N.R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development, 67*, 2317-2327.
- Crick, N.R. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. *Developmental Psychology, 33*, 610-617.
- Crick, N.R., Bigbee, M.A., & Howes, C. (1996). Gender differences in children's normative beliefs about aggression: How do I hurt thee? Let me count the ways. *Child Development, 67*, 1003-1014.
- Crick, N.R., Casas, J.F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33*, 579-588.
- Crick, N.R., & Grotpeter, J.K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*, 710-722.
- Crothers, L.M., Schreiber, J.B., Field, J.E., & Kolbert, J.B. (2009). Development and measurement through confirmatory factor analysis of the Young Adult Social Behavior Scale (YASB): An assessment of relational aggression in adolescence and young adulthood. *Journal of Psychoeducational Assessment, 27*, 17-28.
- Cullerton-Sen, C., Cassidy, A.R., Murray-Close, D., Cicchetti, D., Crick, N.R., & Rogosch, F.A. (2008). Childhood maltreatment and the development of relational and physical aggression: The importance of a gender-informed approach. *Child Development, 79*, 1736-1751.
- Farrington, D.P. & Ttfofi, M.M. (2009). How to reduce school bullying. *Victims and Offenders, 4*, 321-326.

- Field, A. (2005). *Discovering Statistics Using SPSS* (2nd ed.). London: Sage.
- Galen, B.R., & Underwood, M.K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology*, 33, 589-600.
- Giles, J.W., & Heyman, G.D. (2005). Young children's beliefs about the relationship between gender and aggressive behavior. *Child Development*, 76, 107-121.
- Glover, T.A., & Albers, C.A. (2007). Considerations for evaluating universal screening assessments. *Journal of School Psychology*, 45, 117-135.
- Kaukiainen, A., Björkqvist, K., Lagerspetz, K., Österman, K., Salmivalli, C., Rothberg, S., & Ahlbom, A. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive Behavior*, 25, 81-89.
- Kaltiala-Heino, R., Rimpela, M., Marttunen, M., Rimpela, A., & Rantanen, P. (1999). Bullying, depression, and suicidal ideation in Finnish adolescents: school survey. *British Medical Journal*, 319, 348-351.
- Kaltiala-Heino, R., Rimpela, M., Rantanen, P. & Rimpela, A. (2000). Bullying at school: An indicator of adolescents at risk for mental disorders. *Journal of Adolescence*, 23, 661-674.
- Kim, Y.S., Koh, Y.-J., & Leventhal, B. (2005). School bullying and suicidal risk in Korean middle school students. *Pediatrics*, 115, 357-363.
- Lagerspetz, K.M., Björkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11- to 12-year-old children. *Aggressive Behavior*, 14, 403-414.
- Lindell, M.K., & Whitney, D.J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86, 114-121.
- Little, T.D., Jones, S.M., Henrich, C.C., & Hawley, P.H. (2003). Disentangling the “whys” from the “whats” of aggressive behavior. *International Journal of Behavioral Development*, 27, 122-133.
- Loukas, A., Paulos, S.K., & Robinson, S. (2005). Early adolescent social and overt aggression: Examining the roles of social anxiety and maternal psychological control. *Journal of Youth and Adolescence*, 34, 335-345.
- McGrath, M.Z. (2006). *School Bullying: Tools for Avoiding Harm and Liability*, Thousand Oaks, California. Corwin Press.
- Merrell, K.W., Gueldner, B.A., Ross, S.W., & Isava, D.M. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly*, 23, 26-42.
- Miller, J.L., Vaillancourt, T., & Boyle, M.H. (2009). Examining the heterotypic continuity of aggression using teacher reports: Results from a national Canadian study. *Social Development*, 18, 164-180.
- Olweus, D., & Limber, S. (1999) *Blueprints for violence prevention: Bullying Prevention Program*. Institute of Behavioral Science, University of Colorado, Boulder, USA

- Severson, H.H., Walker, H.M., Hope-Doolittle, J., Kratochwill, T.R., & Gresham, F.M. (2007). Proactive, early screening to detect behaviorally at-risk students: Issues, approaches, emerging innovations, and professional practices. *Journal of School Psychology, 45*, 193-223.
- Ttofi, M.M., & Farrington, D.P. (2008). Bullying: Short-term and long-term effects, and the importance of defiance theory in explanation and prevention. *Victims and Offenders, 3*, 289-312.
- Williams, J.R., Fredland, N., Han, H-R., Campbell, J.C. & Kub, J.E. (2009). Relational aggression and adverse psychosocial and physical health symptoms among urban adolescents. *Public Health Nursing, 26*, 489-499.
- Wolke, D., Woods, S., Bloomfield, L., & Karstadt, L. (2000). The association between direct and relational bullying and behavior problems among primary school children. *Journal of Child Psychology and Psychiatry, 41*, 989-1002.
- Xie, H., Cairns, B.D., & Cairns, R.B. (2005). The development of aggressive behaviors among girls: Measurement issues, social functions, and differential trajectories. In D.J. Pepler, K.C. Madsen, C. Webster, & K.S. Levene (Eds.), *The development and treatment of girlhood aggression* (pp. 105-136). Mahawah, NJ: Lawrence Erlbaum Associates.
- Zweig, M.H., & Campbell, G. (1993). Receiver-operating characteristic (ROC) plots: A fundamental evaluation tool in clinical medicine. *Clinical Chemistry, 39*, 561-577.

Appendix A

Informed Consent

Dear Parents,

Your child's class has been selected to participate in a research project affiliated with Louisiana State University. The primary researcher, Emily Patty, is interested in learning about ways to identify the presence of relational aggression within schools and classrooms. By definition, relational aggression is the act of hurting or isolating another student by words or by manipulation of social situations. Relational aggression is a private behavior that happens in such a way, during activities and at times, that teachers are often unaware of there being a problem. Because of this, it is important to actively screen for this behavior so that teachers can be made aware of it and make an attempt to stop children from involvement in relational aggression. The purpose of this research is to develop a screener, a tool that can quickly and easily detect problem behaviors, for relational aggression. We will compare this screening tool to established measures in the field of relational aggression to see if the screener holds up.

We appreciate your child's participation. However, it is understandable that you may not want your child to be a part of this research. Students will be asked questions about their own experiences with relational aggression. Students will also be asked to identify other students in the classroom who are involved in relational aggression. Teachers will also be asked to identify the children they think are involved in relationally aggressive behaviors. The project will be completely anonymous, after data collection. If you do not wish for your child to participate in this research project, please return this form, signed. Thank you so much!

Emily Patty

X_____

I do not want my child to participate.

Appendix B

Introduction to Students

The questions you are about to answer are on a difficult topic - relational aggression. There are lots of ways to be relationally aggressive. You could leave someone out in a group, talk about someone behind his or her back, or try to get one of your friends to stop hanging out with someone simply because you don't like them.

Just because you are going to be answering these questions about yourselves and your classmates does not mean that you should go on and act in these ways. You shouldn't talk to your classmates about what you wrote for your answers. If you need to talk to someone, you can talk to teachers, counselors, or your parents.

The answer choices you are going to see (never through always) aren't always going to feel like the best options. Think of these like a scale from 1 to 5. One (never) being something that you really usually don't do, and 5 (always) being something that you often do.

Appendix C

Demographic Questionnaires; Student and Teacher

Student Demographics Questionnaire

1. Write down the number that is next to your name on the classroom roll that was handed to you.

2. What is your race or ethnicity?

- a. White/Caucasian

- b. Black/African American

- c. Hispanic

- d. Asian

- e. Other: If you check other, please specify _____

Teacher and Classroom Demographic Questionnaire

1. How many years experience as a teacher do you have? _____

2. Do you have a master's or specialist degree? _____

a. If yes, in what? _____

3. Do students typically work alone or in groups in your classroom?

4. How often do you give negative feedback for unsatisfactory performance in your classroom?

Never	Almost Never	Sometimes	Almost Always	Always
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5. How often do you give positive feedback for satisfactory performance in your classroom?

Never	Almost Never	Sometimes	Almost Always	Always
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6. Would you say that you are strict in your classroom or do you have more of a laissez-faire (hands-off) attitude?

7. Do you notice students talking about others in your classroom?

8. What are the consequences for this behavior?

9. Do you notice students excluding others in your classroom?

10. What are the consequences for this behavior?

Appendix D

Relational Aggression Screeners; Self-Report, Teacher-Report, and Peer Nomination

Self-Report Screener

1. How often do *you* not let others play in your group?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

2. How often do *you* talk about others *badly* behind their back?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

3. How often do *you* feel sorry for people when other kids make fun of them?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

4. How often do *other kids* leave you out in a group?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

5. How often do *other kids* talk about you *badly* behind your back?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

6. How often do *other kids* tell people mean things about you, making them not like you anymore?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

7. Do you like to eat peanut butter and jelly sandwiches?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

8. Do you like every person you meet?

Never	Almost Never	Sometimes	Almost Always	Always
-------	--------------	-----------	---------------	--------

9. How often do you get mad at someone?

Never	Almost Never	Sometimes	Almost Always	Always
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Teacher-Report Screener

	Leaves other kids out in groups	Talks about other kids behind their backs	Left out by others in groups	Talked about by other students without them knowing	Likes peanut butter and jelly sandwi ches
James					
Suzanne					
Billy					
Michelle					
Sam					
Will					
April					

Peer-Nominated Screener

1. Write the number next to the name of any of the kids in your class *who leave other kids out when everyone is in a group*. Naming just one is okay, but name as many as you know.

2. Write the number next to the name of any of the kids in your class *who talk about other kids badly behind their backs*. Naming just one is okay, but name as many as you know.

3. Write the number that is next to the name of any of the kids in your class *who are talked badly about by other kids*. Naming just one is okay, but name as many as you know.

4. Write the number that is next to the name of any of the kids in your class *who are left out in groups*. Naming just one is okay, but name as many as you know.

5. Write the number that is next to the name of any of the kids in your class *who like peanut butter and jelly sandwiches*. Naming just one is okay, but name as many as you know.

Appendix E

Anchor Measures; Self-Report, Teacher-Report, and Peer Nomination

Self-Report Anchor Measure

1. Some kids tell lies about a classmate so that the other kids won't like the classmate anymore.

How often do you do this?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

2. Some kids try to keep certain people from being in their group when it is time to play or do an activity. How often do you do this?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

3. When they are mad at someone, some kids get back at the person by not letting the person be in their group anymore. How often do you do this?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

4. Some kids tell their friends that they will stop liking them unless the friends do what they say.

How often do you tell friends this?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

5. Some kids have a lot of friends in their class. How often do you have a lot of friends in your class?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

6. How often do other kids leave you out on purpose when it is time to play or do an activity?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

7. How often does a kid who is mad at you try to get back at you by not letting you be in their group anymore?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

8. How often does a classmate tell lies about you to make kids not like you anymore?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

9. How often does another kid say they won't like you unless you do what they want you to do?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

10. How often does a kid try to keep others from liking you by saying mean things about you?

Never 1	Almost Never 2	Sometimes 3	Almost Always 4	Always 5
------------	-------------------	----------------	--------------------	-------------

Teacher-Report Anchor Measure

Child's Name _____

Teacher's Name _____

School _____

Grade _____

	Never True			Always True	
1. When this child is mad at a peer, s/he gets even by excluding the peer from his or her clique or play group.	1	2	3	4	5
2. This child spreads rumors or gossips about some peers.	1	2	3	4	5
3. When angry at a peer, this child tries to get other children to stop playing with the peer or stop liking the peer.	1	2	3	4	5
4. This child threatens to stop being a peer's friend in order to hurt the peer or get what s/he wants from the peer.	1	2	3	4	5
5. When mad at a peer, this child ignores the peer or stops talking to the peer.	1	2	3	4	5
6. This child gets ignored by other children when a peer is mad at them.	1	2	3	4	5
7. This child gets left out of the group when someone is mad at them or wants to get back at them.	1	2	3	4	5
8. This child is the target of rumors or gossip in the play group.	1	2	3	4	5

Peer-Nominated Anchor Measure

1. Make Others

Find the number of three kids who try to make another kid not like a certain person by spreading rumors about them behind their backs.

2. Keep Out

Find the numbers of three people, who when they are mad at a person, get even by keeping that person from being in their group of friends. EXAMPLES: 1) Say you're going to a party with some friends and someone says "let's invite some kid", we want you to pick someone who would say "NO, I don't want to invite that kid because I'm mad at them." 2) Pick someone who would say to a kid, "I'm going to the mall with my friends and you can't come, because I'm mad at you."

3. Ignores Others

Find the numbers of three people who, when they are mad at a person, ignore the person or stop talking to them.

4. Stop Liking

Find the number of three people who let their friends know that they will stop liking them unless the friends do what they want them to do.

5. Keep People

Find the number of three people who try to exclude or keep certain people from being in their group when doing things together (like having lunch in the cafeteria or going to the movies). EXAMPLES: 1) Say you're in the cafeteria eating with your friends and someone says "let's ask that kid to sit with us" we want you to pick someone who would say "NO, I don't want that kid to sit with us." 2) Pick someone who would say to a kid "I'm going to the movies with my friends and you can't come."

6. Lies Told

Find the number of three kids who have lies told about them so other kids won't like them anymore.

7. Left out

Find the numbers of three classmates who get left out of the group when at play or activity time because one of their friends is mad at them.

8. Get Even

Find the numbers of three kids who get left out of things when someone is mad at them or wants to get even.

9. Ignored

Find the numbers of three people who get ignored by classmates when someone is mad at them.

10. Rumors

Find the numbers of three people that other kids tell rumors about behind their backs.

Vita

Emily F. Patty is a candidate for the Master of Arts degree in the school psychology program at Louisiana State University. She graduated *Summa Cum Laude* with a Bachelor of Arts degree from the University of Alabama in May of 2009. Upon receiving her Master of Arts degree in May of 2012, she will pursue a doctorate degree under the supervision of Dr. Frank M. Gresham.